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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,895	12/28/2004	Katsumi Okayama	075834.00429	2568

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EXAMINER	
WENDLER, ERIC J	

ART UNIT	PAPER NUMBER
2824	

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05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,895	OKAYAMA ET AL.	
	Examiner	Art Unit	
	Eric Wendler	2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/16/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *EAST search history*.

DETAILED ACTION

1. This office action is responsive to the following communication: the Request for Continued Examination filed on January 8, 2007.

2. Claims 1, 3-13, are pending in the present application. Claims 1, 8, 9, 12, are independent claims.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. JP 2002-202026, filed on July 11, 2002.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on January 16, 2007, is in compliance with the provisions of 37 CFR 1.97 and has been considered by the examiner.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4, 7, 12, are rejected under 35 U.S.C. 102(b) as being anticipated by the US Patent Application Publication of Nakashio et al. (US 2002/0003684).

7. Regarding claims 1, 12, Nakashio et al. teach a magnetic non-volatile memory device on a wafer provided with magnetic shielding layers 24, 29, made from a soft magnetic metal (paragraph 0019) formed at a top and bottom region of the device, formed at the mounting side of the device, and the surface opposite the mounting side of the device (Fig. 3, paragraph 0085), for suppressing magnetic flux into the device, wherein the device includes a plurality of layers between the magnetic shielding layers (Fig. 3), of which at least one of the plurality of layers has the same material of at least one of the magnetic shielding layers. Nakashio et al. teach a fixed magnetization layer 31 comprising a NiFe layer. It is well known in the art, and acknowledged and confirmed by the applicant in page 9, paragraphs 10-15 of the specification, that NiFe is a soft magnetic metal suitable for using in magnetic shielding layers. Therefore, Nakashio et al. teach at least one of the plurality of layers having the same material as at least one of the magnetic shielding layers.

8. Regarding claims 4, 7, Nakashio et al. teach a magnetic non-volatile memory device in which the magnetic shielding layers have a composing element which is common to a part of an element of various layers composing the device. As mentioned in the previous paragraph, Nakashio et al. teach a fixed magnetization layer 31 comprising a NiFe layer. This same layer is also comprised of a CoFe layer. The magnetic shielding layers, made of soft magnetic metal NiFe, has Fe as an element in common with various other layers composing the device. Nakashio et al. therefore teach all the claimed elements.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 3, 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over the US Patent Application Publication to Nakashio et al. (US 2002/0003684) in view of the US Patent to Yoshikawa (6648990).

11. Regarding claims 3, 10, Nakashio et al. teach all the claimed elements as discussed above but fail to teach that the magnetic shield layers are formed of a nano-granular structure having a magnetic layer and a non-magnetic layer. Yoshikawa teaches the use of nano-granular structures as being excellent in soft magnetic properties and for use in high frequency magnetic applications (column 1, lines 18-57). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use the nano-granular materials taught by Yoshikawa in structures that require soft magnetic materials, such as the magnetic shielding layers taught by Nakashio et al.

12. Claims 5, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over the US Patent Application Publication to Nakashio et al. (US 2002/0003684) in view of the US Patent to Shouji et al (5,880,910).

13. Regarding claims 5, 11, Nakashio et al. teach all the claimed elements as discussed above but fail to teach a passivation film formed on the magnetic shield layer. Shouji teaches the use of a passivation film coated on top of a composite magnetic head device (column 14, lines 14-15). Passivation layers are well known in the art as a way of protecting the surfaces of metal and mineral layers. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to use the passivation layer taught by Shouji to coat the magnetic shield layer taught by Nakashio et al. for the purpose of protecting the magnetic shield layer.

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the US Patent Application Publication to Nakashio et al. (US 2002/0003684) in view of the US Patent to Saito et al (6,717,845).

15. Regarding claim 6, Nakashio et al. teach all the claimed elements as discussed above, but fail to explicitly teach that the magnetic shielding layers are magnetically coupled to each other. Saito teaches a layer of metal-nonmetal nano-granular material covering write-in elements for the purpose of controlling and guiding the magnetic field produced (column 5, lines 43-63; column 6, lines 33-37). It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teaching of Saito with the teaching of Nakashio et al. since the covering layer taught by Saito is comprised of the same metallic-nonmetallic nano-granular material as the magnetic shielding devices taught above by the combination of Nakashio et al. and Yokishawa, and would be ideal for magnetically coupling the two magnetic shielding devices together for the purpose of continued suppression of magnetic flux.

16. Claims 8-9, 13, are rejected under 35 U.S.C. 103(a) as being unpatentable over the US Patent Application Publication to Nakashio et al. (US 2002/0003684) in view of the US Patent to Tracy et al. (5,902,690).

17. Regarding claim 8, Nakashio et al. teach all the claimed elements as discussed above but are silent as to the exact method of formation of the magnetic shielding structures. Tracy et al. teach the formation of a magnetic shielding layer using sputtering techniques. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use this technique to form the magnetic shielding layers of Nakashio et al. using the sputtering techniques of Tracy et al. since both devices are forms of MR devices.

18. Regarding claims 9, 13, Nakashio et al. teach all the claimed elements as discussed above but are silent as to whether the magnetic shield layers extent across the entire substrate containing all the memory arrays. Tracy et al. teaches a magnetic shielding layer that extends across the entire substrate of memory arrays. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Tracy et al. with the device of Nakashio et al. since both devices are forms of MR devices.

Response to Arguments

19. Applicant's arguments filed on January 8, 2007, have been fully considered but they are not persuasive. In response to the applicant's argument that Examiner has relied on the Applicant's specification to teach elements of the invention, the Examiner has merely used the Applicant's specification to corroborate the teachings of Nakashio

et al. in paragraph 0011 concerning metals suitable for use in magnetic shielding layers, and has not relied upon it as the sole source of teaching. This argument is therefore not persuasive.

20. In response to applicant's argument that Nakashio et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, while the device taught by Nakashio et al. is a magnetic read head, it is a TMR device that, in the Examiner's opinion, is obviously in the applicant's field of endeavor of magnetoresistive devices and would be looked towards by one of ordinary skill in the art to solve similar problems. This argument is therefore not persuasive.

21. In response to applicant's argument that Nakashio et al. fails to teach that the magnetization layer is to be formed of the same material as one of the magnetic shielding layers, Examiner agrees that Nakashio et al. has explicitly taught that the shielding layers are made of CoZrNbTa. However, this is used merely as an example, was not intended to limit the scope of the invention, and, in the Examiner's opinion, does not preclude these layers from being made of the other materials Nakashio et al. previously discussed in paragraph 0011 instead. This argument is therefore not persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Wendler whose telephone number is (571) 272-5063. The examiner can normally be reached on Monday - Friday 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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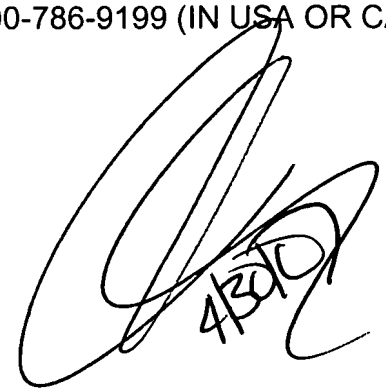

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